REMARKS

Claims 1-9, 11-21 are pending in this application. Claims 1, 11, 13 and 14 are amended. Claim 10 has been cancelled, without prejudice. Claims 15-21 have been added to further define the invention. Support for the amendment of claims 1, 11, 13 and 14 and new claims 15-21 can be found, for example, at Fig. 1, Fig. 2 and pages 14-15 of the specification. No new matter has been added. Reconsideration of the pending claims in view of the amendments and the following remarks is respectfully requested. The various issues raised by the Office Action are addressed next in the order in which they appear in the Office Action.

102 Rejection

The Office Action rejected claim 14 under 35 U.S.C. 102 (b) as being anticipated by Brotsky (US Patent Number 5,490,246) ("Brotsky"). Applicants respectfully submit that claim 14, as amended, is not anticipated by Brotsky for at least the following reasons.

Brotsky teaches a graphical editor where the user creates a directed graph (the ACG) in order to describe how an image is constructed out of one or more figural elements such as graphical images. See col. 5, ln. 4-20. An internal node or transform in Brotsky's ACG simply represents an operation, i.e. an internal node takes image fragments as input and produces a new image as output. See col. 7, ln. 1-17 and col. 20, ln. 4-7. Internal nodes do not have embedded child nodes.

Moreover, the user interface of Brotsky does not provide editors for internal nodes. See col. 20, ln. 16-17. Thus, internal nodes cannot be edited and cannot be replaced by their child nodes.

By contrast, claim 14 recites "a user interface ... causing the rendering system to replace the displayed node with one or more embedded child nodes in response to the user action." Accordingly, it is respectfully requested the Section 102 rejection be withdrawn.

In addition, claim 14 recites a graph comprising a tree comprising a plurality of subtrees, each said subtree representing one or more nodes in the graph, the

relationship among the plurality of subtrees representing the edges among nodes in the graph. In contrast, Brotsky's ACG does not contain such a tree structure.

103 rejections

The Office Action rejected claims 1 and 11-12 under 35 U.S.C. 103 (a) as being unpatentable over Brotsky in view of US Patent No. 5,692,184 to Ardoin ("Ardoin"). It is respectfully submitted that claims 1 and 11-12 are patentable over Brotsky in view of Ardoin for at least the following reasons.

Claims 1 and 11-12 all recite a graph comprising a tree comprising a plurality of subtrees, each said subtree representing one or more nodes in the graph, the relationship among the plurality of subtrees representing the edges among nodes in the graph. As stated above, Brotsky does not teach, disclose, or suggest a graph containing such a tree structure. Moreover, although Ardoin discloses numerous code for modifying and processing nodes in a graph, it still does not teach a graph containing such a tree structure.

Accordingly, it is respectfully requested that the 103 rejection of claims 1 and 11-12 be withdrawn.

The Office Action rejected claim 13 under 35 U.S.C. 103 (a) as being unpatentable over Brotsky in view of US Patent No. 6,339,776 to Dayani-Fard ("Dayani-Fard"). It is respectfully submitted that claim 13 is patentable over Brotsky and Dayani-Fard for at least the following reasons.

It is first respectfully submitted that Brotsky and Dayani-Fard are not analogous art and thus cannot be combined to make the 103 rejection. Brotsky teaches only a graph editing tool. The purpose of its interface to third party tools is to use such tools to support the conversion from one graphical model (the Euclidean model) to another graphical model (the raster model). In contrast, Dayani-Fard teaches a repository-based reverse engineering system having an external interface. The purpose of the external interface is to provide external tools to access database or other public application program interfaces (APIs). Because their interfaces serve distinctively different purpose, they cannot be deemed to be analogous.

Furthermore, a person with ordinary skill in the art would see no reason to combine Brotsky and Dayani-Fard because Brotsky does not need the external database or external APIs of a reverse-engineering system to convert from one graphical model to another and Dayani-Fard does need graphical conversion tools to assist its reverse-engineering system.

It is next respectfully submitted that neither Brotsky nor Dayani-Fard teaches a graph model structure comprising a tree comprising a plurality of subtrees, each said subtree representing one or more nodes in the graph, the relationship among the plurality of subtrees representing the edges among nodes in the graph, as recited by claim 13.

Accordingly, it is respectfully requested that the 103 rejection of claim 13 be withdrawn.

The Office Action rejected claims 2-3 under 35 U.S.C. 103 (a) as being unpatentable over Brotsky in view of Ardoin, further in view of Guy E. Blelloch, "Provably Efficient Scheduling for Languages with fine-Grained Parallelism" ("Blelloch"). It is respectfully submitted that claims 2-3 are patentable over Brotsky in view of Ardoin and Blelloch for at least the following reasons.

It is first respectfully submitted that Brotsky, Ardoin and Blelloch are not analogous art and thus can not be combined in a 103 rejection. Brotsky, as described above, teaches a graphic editing tool. Ardoin teaches a system for managing the relationship of data objects. Blelloch, on the other hand, teaches a tool for dynamically scheduling the execution of tasks performed by parallel algorithms during program execution. It is obvious that neither a graph nor a data object can be executed by a computer. Moreover, neither a graph nor a data object is analogous to a task performed by parallel algorithms. Applicants therefore respectfully submit that the teachings of Brotsky, Ardoin and Blelloch serve completely different purpose and thus can not be combined in a 103 rejection.

Moreover, the scheduler taught by Blelloch is a "dynamic" run-time scheduler in that it allocates computing resources in a step by step fashion as the structure of the algorithm is revealed during its execution. See, e.g., Abstract on pg. 281-282. In contrast, the software analysis tool defined by claim 1 is a "static" tool in that it

converts software entities including software program code and their relationships into graphs without executing those software entities.

Furthermore, it is respectfully submitted that Blelloch does not teach, disclose, or even suggest bi-directionally folding and unfolding a graph between meta and child levels, as required by claims 2-3. Specifically, the disclosure at pg. 301, section 5.4.2 of Blelloch only teaches "dynamically unfolding DAGs" (Directed Acyclic Graphs) whose nodes and edges are created as the program is executed. In other words, nodes and edges of a DAG do not exist until the program is executed. In contrast, the term "unfolding" in claims 2-3 refers to the removal of a meta node on a graph and replacing it with its embedded child graph. Unlike the DAG, the embedded child graph already exists before its parent node is unfolded. Therefore, "unfolding DAGs" as taught by Blelloch is entirely different from "unfolding a meta node" as taught by claims 2-3.

In addition, Blelloch does not teach, disclose or suggest a graph comprising a tree comprising a plurality of subtrees, each said subtree representing one or more nodes in the graph, the relationship among the plurality of subtrees representing the edges among nodes in the graph, as recited by claim 1.

Accordingly, it is respectfully requested that the 103 rejection of claims 2 and 3 be withdrawn.

The Office Action rejected claims 4-9 under 35 U.S.C. 103 (a) as being unpatentable over Brotsky in view of Ardoin, further in view of Blelloch, further in view of Perttunen (US Patent Number 6,359,635) ("Perttunen"). It is respectfully submitted that these claims are patentable over Brotsky, Ardoin, Blelloch and Perttunen for at least the following reasons.

It is first respectfully submitted that Brotsky, Ardoin, Blelloch and Perttunen are not analogous art and thus can not be combined in a 103 rejection. Brotsky teaches a graphic editing tool. Ardoin teaches a system for managing the relationship of data objects. Blelloch teaches a tool for dynamically scheduling the execution of tasks performed by parallel algorithms during program execution. Perttunen teaches the presentation of categorized information, such as organization charts, in the form of graphs and charts. See, e.g., col. 1, lns. 7-9. Applicants respectfully submit that the structure and functionality of four references are distinctively different from one

another and thus can not be combined in a 103 rejection. Furthermore, there is no teaching or suggestion in these four references to combine.

Next, it is respectfully submitted that like Brotsky, Ardoin and Blelloch, Perttunen does not teach, disclose, or suggest a graph comprising a tree comprising a plurality of subtrees, each said subtree representing one or more nodes in the graph, the relationship among the plurality of subtrees representing the edges among nodes in the graph, as required by claim 1. Therefore, the combined teachings of Brotsky, Blelloch and Perttunen do not render claims 4-9 unpatentable since claims 4-9 ultimately depend from patentable independent claim 1 and claim 1 expressly requires analyzing the dependency of software entities comprising software program code.

Accordingly, it is respectfully requested that all of the Section 103 rejections be withdrawn.

New dependent claims 15-19 are added to further define the invention. Applicants respectfully submit that claims 15-19 are patentable over all the references cited above, either individually or in combination, because of the arguments above and the limitations contained in these claims themselves.

New independent claim 20 and dependent claim 21 are also added to further define the invention. Applicants respectfully submit that claims 20-21 are patentable over all the references cited above, either individually or in combination, because the references cited above, either individually or in combination, did not teach the limitations contained in these claims.

CONCLUSION

In light of the above, it is respectfully submitted that the present application is in condition for allowance. Favorable disposition is respectfully requested. Should the Examiner have any questions or comments concerning this submission, or any aspect of the application, the Examiner is respectfully invited to call the undersigned at the phone number listed below.

No fee other than the fee for the extension of time is believed due at this time. Should any fees be required, please charge such fees to Morgan, Lewis & Bockius LLP Account No. 50-0310.

Respectfully submitted,

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